

## IP TELEPHONE SYSTEM

### ABSTRACT OF THE DISCLOSURE

An Internet Protocol (IP) telephone has a constant impedance filter that is capable of being continuously attached to the physical layer of a computer chip in the IP telephone. The constant impedance filter is located outside the physical layer and is connected to a relay on the physical layer. The relay is configured using native FET devices, which are normally conductive without a supply voltage. Therefore, the relay is capable of operating during the discovery mode of IP telephone operation, where no power is applied to the substrate. Rectifier circuits rectify an incoming signal during discovery mode, and apply the rectified signal to the gate of the relay to improve conductivity of the relay. This allows for faster detection of the IP telephone during discovery mode. During normal operation mode, voltage is applied to the physical layer, and the relay is opened by grounding the native devices. Also, during the normal operation mode, any signal coming from the constant impedance filter is terminated in a switchable termination resistor that is also disposed on the physical layer.

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